



XPERIA P



LT22i

Purpose of this document

Sony product White papers are intended to give an overview of a product and provide details in relevant areas of technology.

Document history

Version

February 2012	First released version	Version 1
---------------	------------------------	-----------

Sony Ericsson Developer World

For the latest technical documentation and development tools, go to www.sonyericsson.com/developer.

This White paper is published by:

Sony Ericsson Mobile Communications AB,
SE-221 88 Lund, Sweden

www.sonyericsson.com

© Sony Ericsson Mobile Communications AB,
2009-2012. All rights reserved. You are hereby
granted a license to download and/or print a
copy of this document.
Any rights not expressly granted herein are
reserved.

First released version (March 2012)
Publication number: 1255-9281.1

This document is published by Sony Mobile
Communications AB, without any warranty*.
Improvements and changes to this text
necessitated by typographical errors,
inaccuracies of current information or
improvements to programs and/or equipment
may be made by Sony Ericsson Mobile
Communications AB at any time and without
notice. Such changes will, however, be
incorporated into new editions of this document.
Printed versions are to be regarded as temporary
reference copies only.

*All implied warranties, including without
limitation the implied warranties of
merchantability or fitness for a particular
purpose, are excluded. In no event shall
Sony Ericsson or its licensors be liable for
incidental or consequential damages of any
nature, including but not limited to lost profits or
commercial loss, arising out of the use of the
information in this document.

Table of contents

Product overview	4
Sony Xperia™ P – Experience bright	4
Signature features	6
Facts – dimensions, weight, performance and networks	7
Categorised feature list	9
 Technologies in detail	 11
Device-to-device communications (local)	11
Bluetooth™ wireless technology	11
Wi-Fi®	12
DLNA Certified® (Digital Living Network Alliance)	13
Messaging	14
MMS (Multimedia Messaging Service)	14
Email	14
Positioning – location based services	15
Provisioning (OMA CP)	15
Multimedia (audio, image and video)	16
Synchronisation (OMA DS, EAS, Google Sync™)	17
Web browser	18
Trademarks and acknowledgements	19

Product overview

Sony Xperia™ P – Experience bright

Stay in the sun and watch everything clearly on Xperia™ P's ultra-bright Reality Display with WhiteMagic™ technology. Shoot the action as it happens in full HD with the 8 MP camera. It starts up fast, snaps faster and is excellent in low light. Dull day? Brighten it up with a choice of up to 12 million songs from Music Unlimited™* or the latest movies from Video Unlimited™* All on Sony Entertainment Network. Want to share your content on the big screen? View your pictures, movies and TV shows on your tablet, TV or laptop. It's so easy to connect.

Ultra-bright Reality Display

Read the news or see the latest sports clips on an ultra-bright screen, even in glaring sunlight, thanks to Sony's unique WhiteMagic™ technology. It automatically adjusts your screen to where you are – staying bright and super clear in sunlight, while saving power when you're inside. And thanks to Mobile BRAVIA® Engine, the colours in your favourite clips and stills look as razor sharp and clear as ever.

Geared up for great clips

Shoot it as you see it. The end of the party or the early morning start of your holiday. Make everything look as sharp as possible with Xperia™ P's 8 megapixel full HD camera with Exmor R™ for mobile image sensor. It helps you capture stunning pictures, even in low light.

Snap your shots in an instant

Some things are just too good to miss. Make sure you always get the right shot with Xperia™ P's super-fast camera. Just over a second from sleep to snap, and just one second between shots. And it's almost as quick to share your perfect pictures with friends on Facebook™, by text or mail.

Easy connectivity

Share all your stuff on the big screen – any screen. Just plug Xperia™ P into your TV's HDMI port. Use the TV remote to choose what you want in your phone – the latest movies, YouTube™ clips or your favourite TV series. And with one quick swipe you can share your photos wirelessly on your tablet, TV or laptop.

*Sony Entertainment Network together with the Video Unlimited and Music Unlimited services are not available in every market. Additional charges may apply.

Sony Entertainment Network. Your ultimate source for digital entertainment

Feasts for film fans, masses of music. Enjoy a global catalogue of more than 12 million songs from Music Unlimited. Or download your favourite hit movies from Video Unlimited™*. It's all on Sony Entertainment Network. No trips to the store. No late fees. Just pure entertainment. The best tracks from Music Unlimited. The latest movies from Video Unlimited – enjoy everything with one account. It's the perfect fit for a life full of entertainment.

**Sony Entertainment Network together with the Video Unlimited and Music Unlimited services are not available in every market. Additional charges may apply.*



Signature features

The Sony Xperia™ P comes with a range of features as standard. Below is a summary of the key signature features.

Xperia™ Timescape™

The place to meet your friends

The Timescape™ application manages all your communication with one person in one place. You can effortlessly browse by category your Facebook™, Twitter™, email and text communications, as well as view your photos. Now everything is all together and in chronological order, so you don't have to open different applications to see what's going on.

Infinite button

Everything you want – from everywhere

Tap the infinite button in the Timescape™ application and smart filter each category of communication by person. For example, when viewing a text message from a friend in Timescape™, tap the infinite button to view a list of all chat messages with that friend.

Local connectivity

More control over your media

Using Local connectivity, you can exercise more control over how media files get transferred and stored. For example, you can select MTP mode to transfer files if you want to limit the risk of data corruption if you want to have more control over the data storage.

Home screen application

The place you call Home

Customise your Home screen with widgets, shortcuts, folders, themes, wallpaper and other items. Where's best for you? Email top right? Music player bottom left? You decide. With four extensions to your Home screen, you've got plenty of space to put things where you want. Just remember to flick left or right to find them.

Facts – dimensions, weight, performance and networks¹

Operating system	Google™ Android™ 2.3 (Gingerbread)
Processor	1 GHz NovaThor™ U8500 Dual core
GPU	Adreno 205
Size	122 x 59.5 x 10.5 mm
Weight	126 grams
Available colours	Silver, Black, Red
Main screen	
Colours	16,000,000 colour TFT
Resolution	960x540 pixels
Size (diagonal)	4 inches
Scratch-resistant	Hard coated shatter proof sheet on scratch-resistant glass
Input mechanisms	
Text input	On-screen QWERTY keyboard
Touch screen	Capacitive
Touch gesture	Yes – multi-touch, up to 4 fingers supported
Memory	
Internal phone storage	16 GB (up to 13 GB user-accessible memory)
RAM	1 GB
Camera	
Camera resolution	8 megapixel
Digital zoom	8x
Video zoom	16x
Photo flash	Yes – LED
Video recording	Yes – HD 1080p
Video chat camera (dedicated camera)	Yes
Front camera	Yes – VGA for video chat
Sensors	

1. Performance metrics measured under laboratory conditions.

Accelerometer	Yes
Proximity sensor	Yes
Ambient light sensor	Yes
Magnetometer	Yes
Gyroscope	Yes
Networks	
LT22i	UMTS HSPA 850 (Band V), 900 (Band VIII), 1900 (Band II) and 2100 (Band I) GSM GPRS/EDGE 850, 900, 1800, 1900
Data transfer speeds	
GSM GPRS	Up to 100 kbps
GSM EDGE	Up to 296 kbps
UMTS HSPA cat 6 (upload)	Up to 5.6 Mbps
UMTS HSPA cat 10(download)	Up to 14.4 Mbps
Talk time (GSM)	Up to 6 hours*
Standby time (GSM)	Up to 470 hours*
Talk time (UMTS)	Up to 5 hours*
Standby time (UMTS)	Up to 475 hours*
Music listening time	Up to 80 hours
Video playback time	Up to 4 hours
Battery	1305 mAh, typical 1265 mAh, minimum

* Values are according to GSM Association *Battery Life Measurement Technique*. Preliminary measures as indication, final measures to be provided before commercial availability.

NOTE: Battery performance may vary depending on network conditions and configurations, and phone usage.

Categorised feature list

 <p>Camera</p> <p>3D Sweep Panorama™ 8 megapixel camera 8x Digital zoom Auto focus Face detection Flash/LED Front-facing camera (VGA) Geotagging HD video recording (1080p) Image stabiliser Red-eye reduction Scene recognition Self-timer Smile detection Sony Exmor R™ for mobile image sensor Sweep Panorama™ Sweep Multi Angle™ Touch capture Touch focus Video light Video recording</p>	 <p>Music</p> <p>3D surround sound Bluetooth™ stereo (A2DP) Clear bass Clear stereo Music Player PlayNow™ service* SensMe™ TrackID™ music recognition* xLoud™</p>	 <p>Internet</p> <p>Android Market™ Google™ search* Google Voice™ Search* Google Maps™ Web browser (WebKit)</p>
 <p>Communication</p> <p>Call list Facebook™ application* Facebook inside Xperia™ Google Talk™ application* Noise Suppression Xperia™ Timescape™ Speakerphone</p>	 <p>Messaging</p> <p>Conversations Email Gmail™* Instant messaging Multimedia messaging (MMS) Sound recorder Text messaging (SMS)</p>	 <p>Design</p> <p>Auto rotation Gesture input Keyboard (on-screen, QWERTY) Mobile BRAVIA® ENGINE Reality Display with Sony WhiteMagic™ technology Screenshot capturing Touch screen</p>

 <p>Entertainment</p> <ul style="list-style-type: none"> 3D Album Accelerated Adobe Flash Video Media browser Motion gaming Radio (FM radio with RDS) Sony Entertainment Networks* Video streaming YouTube™* 	 <p>Organiser</p> <ul style="list-style-type: none"> Airplane mode Alarm clock Calculator Calendar Contacts Document readers eCompass™ E-Manual Notes Setup guide Stopwatch Tasks Timer 	 <p>Connectivity</p> <ul style="list-style-type: none"> 3.5 mm audio jack (CTIA) aGPS* Bluetooth™ wireless technology DLNA Certified® HDMI support Media Transfer Protocol support Micro USB support Native USB tethering NFC PC Companion Synchronisation via Microsoft® Exchange ActiveSync® USB High speed 2.0 support USB host Wi-Fi® Wi-Fi® hotspot functionality
--	--	---

* This service is not available in all markets.

Technologies in detail

NOTE: The information outlined below is general and levels of compliance to standards and specifications may vary between products and markets. For more information, contact Sony Ericsson Developer World or your Sony contact person where applicable.

Device-to-device communications (local)

Bluetooth™ wireless technology

Bluetooth™ profiles supported	Advanced Audio Distribution Profile v1.2 Audio/Video Remote Control Profile v1.0 Handsfree Profile v1.5 Headset Profile v1.1 Object Push Profile v1.1 Phonebook Access Profile v1.0
Core version and supported core features	Advanced Audio 2.1 + EDR
Connectable devices	Products which support at least one of the Bluetooth profiles above.

More information:

www.sonyericsson.com/developer

www.bluetooth.com

Wi-Fi®

Supported standards	IEEE 802.11b/g/n and Wi-Fi®
Connectable devices	Wi-Fi® access points
Frequency band	2.4 GHz
Data transfer rate	Up to 72 Mbit/s
Security	WEP 64 bit WEP 128 bit TKIP CCMP (AES) Open Authentication Shared Authentication EAP-SIM EAP-TLS EAP-TTLS/MSCHAPv2 PEAPv0/EAP-MSCHAPv2 PEAPv1/EAP-GTC WPA Personal and WPA2 Personal WPA Enterprise and WPA2 Enterprise
Encryption	WEP, TKIP and AES
Power save	WMM-UAPSD QoS, WMM

DLNA Certified® (Digital Living Network Alliance)

Supported Device Classes	<p>M-DMS – Mobile Digital Media Server Media Types: images, video and music Summary: The digital media server exposes the media files in your phone to a Wi-Fi® network. The files can then be accessed from other DLNA Certified™ clients.</p> <p>+PU+ Media Types: images, video and music Summary: Play media saved in the phone on another device, such as a TV or computer, using 2 box push technology. +PU+ is integrated in the Gallery and Music applications.</p> <p>M-DMP – Mobile Digital Media Player Media Types: images, video and music Summary: Play content stored on another device, for example, a server or a PC, directly on the phone.</p>
Supported Bearers	Wi-Fi®
DRM Support	The DLNA Certified® implementation does not support DRM-protected content.

NOTE: Only M-DMS/M-DMP/+PU+ for image will be applied for DLNA Certification.

Messaging

MMS (Multimedia Messaging Service)

According to OMA Multimedia Messaging Service v1.0 + SMIL

Email

Bearer type (IP)	GPRS, EGPRS, UMTS
Character sets	BIG5 Traditional Chinese GB18030 ISO-2022-JP Japanese ISO-8859-1 ISO-8859-2 Eastern Europe ISO-8859-5 Cyrillic ISO-8859-7 Greek ISO-8859-9 Turkish ISO 8859-11 KOI8-R Cyrillic Shift_JIS Japanese USASCII UTF-16 UTF-8 Windows® 874 Windows® 1251 Cyrillic Windows® 1252 Windows® 1254 Turkish Windows® 1258 Vietnamese
Protocols	POP3 and IMAP4
Push email	Microsoft® Exchange ActiveSync® (EAS)
Secure email	SSL/TLS, both port methods (POPS/IMAPS) and START-TLS
HTML mail	Yes (read only)

More information:

www.sonyericsson.com/developer

www.openmobilealliance.org

Positioning – location based services

Supported standards:

- OMA Secure User Plane Location (SUPL) v2.0
- 3GPP™ Control Plane location (incl. Emergency location)

Supported satellite systems:

GPS

Provisioning (OMA CP)

OMA CP version 1.1

Multimedia (audio, image and video)

Audio Playback	Decoder format	Supported in file format
	Layer 3	MP3 (.mp3))
	AAC, AAC+, eAAC+	3GPP (.3gp), MP4 (.mp4, .m4a)
	AMR-NB, AMR-WB	3GPP (.3gp)
	General MIDI (GM)	SMF (.mid)
	Linear PCM 16bit	WAV (.wav)
	OTA	OTA (.ota)
	Ogg vorbis	Ogg vorbis (.ogg)
Audio Recording	Encoder format	Supported in file format
	AMR-NB, AMR-WB	3GPP (.3gp), MP4 (.mp4), AMR (.amr)
	AMR-NB, AMR-WB, AAC-LC stereo, sample rate 48 kHz bit rate 128 kbps	3GPP (.3gp), MP4 (.mp4)
Image Playback	Decoder format	Supported in file format
	1, 4, 8, 16, 24 and 32 bpp and RLE encoded formats	BMP (.bmp)
	Single and multi-frame, bitmap mask support (GIF87a format and GIF89a format)	GIF (.gif)
	Joint Photographic Experts Group	JPEG (.jpg)
	Portable Network Graphics Bitmap mask support	PNG (.png)
	Wireless Bitmap	WBMP (.wbmp)
Image Capture	Encoder format	Supported in file format
	Joint Photographic Experts Group	JPEG (.jpg)
Video Playback	Decoder format	Supported in file format
	MPEG-4 Visual Simple Profile Level 6, Advanced Simple Profile Level 5	3GPP (.3gp), MP4 (.mp4)
	H.264 High Profile, Level 4	3GPP (.3gp), MP4 (.mp4)
	H.263 Profile 0, Level 70	3GPP (.3gp)
Video Recording	Encoder format	Supported in file format
	Video H.263 Profile 0, H.264 Baseline Profile Audio: AAC-LC stereo, sample rate 48 kHz bit rate 128 kbps, AMR-NB	3GPP (.3gp), MP4 (.mp4)

Audio/Video Streaming	Streaming transport	RTSP according to 3GPP™ HTTP streaming
DRM	DRM (Digital Rights Management) – features the rights and copy protection of downloaded content	OMA DRM 1.0

Synchronisation (OMA DS, EAS, Google Sync™)

OMA Data Synchronisation protocol versions 1.1.2 and 1.2

OMA Data Formats: vCard 2.1, vCalendar 1.0

Microsoft® Exchange ActiveSync® protocol version 2.5

Microsoft® Exchange ActiveSync® protocol version 12

Microsoft® Exchange ActiveSync® protocol version 12.1

Google Sync™

Related information:

www.sonyericsson.com/developer

Web browser

Browser version	Android 2.3 Browser (Based on WebKit)
Navigation/rendering	Adobe™ Flash™ 11* Full page PC rendering Landscape/portrait rendering Pan & Zoom Share link via NFC
Search	Internet Search
Browser compliancy	CSS 2.0 CSS 2.1 CSS 3.0 DOM 2.0 DOM 3.0 HTML version 4.0 HTML version 5.0 JavaScript 1.7/ECMA-script 262 3rd edition WebGL 1.0 XHTML Basic version 1.0 XHTML 1.1
Supported Device API	Geo-location API
Protocol compliancy	Gzip HTTP/1.1 OMA Download 1.0 TLS 1.0 and SSL 3.0

* Updates are distributed via Android market™.

Related information:

www.sonyericsson.com/developer

Trademarks and acknowledgements

The Liquid Identity and Liquid Energy logos, PlayNow, TrackID, Xperia, SenseMe and Timescape are trademarks or registered trademarks of Sony Ericsson Mobile Communications AB. Sony, "make.believe", Exmor R, xLoud, Sweep Panorama, Music Unlimited, Video Unlimited, WhiteMagic and Mobile BRAVIA Engine are trademarks or registered trademarks of Sony Corporation. Ericsson is a trademark or registered trademark of Telefonaktiebolaget LM Ericsson. PlayStation and PlayStation Certified are trademarks or registered trademarks of Sony Computer Entertainment, Inc.

The Bluetooth word mark and logos are owned by the Bluetooth SIG, Inc. and any use of such marks by Sony Ericsson is under licence. TrackID is powered by Gracenote Mobile MusicID. Gracenote and Gracenote Mobile MusicID are trademarks or registered trademarks of Gracenote, Inc.

Google, Google Calendar, Google Gallery 3D, Google Latitude, Google Maps, Google Places, Google Talk, Google Search, Google Sync, Google Mail, Picasa, YouTube, Google Voice, Android and Android Market are trademarks or registered trademarks of Google, Inc. Facebook is a trademark or registered trademark of Facebook, Inc. Twitter is a trademark or a registered trademark of Twitter, Inc.

Wi-Fi is a trademark or registered trademark of the Wi-Fi Alliance. DLNA and DLNA Certified are trademarks or registered trademarks of the Digital Living Network Alliance. microSD is a trademark or registered trademark of SanDisk Corporation. XHTML is a registered trademark of the W3C. eCompass is a trademark or registered trademark of Genoptix, Inc.

Microsoft, Windows, ActiveSync are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

Adobe Flash is a trademark or registered trademark of Adobe Systems Incorporated in the United States and/or other countries. 3GPP™ is a trademark of ETSI.

EA, the EA logo, Need for Speed, the "N" icon and the Need for Speed logo are trademarks of Electronic Arts Inc.

Java, JavaScript and Java-based trademarks and logos are trademarks or registered trademarks of Oracle America, Inc., in the U.S. and other countries. End-user license agreement for Oracle Java Platform, Micro Edition. 1. Restrictions: Software is confidential copyrighted information of Oracle and title to all copies is retained by Oracle and/or its licensors. Customer shall not modify, decompile, disassemble, decrypt, extract, or otherwise reverse engineer Software. Software may not be leased, assigned, or sublicensed, in whole or in part. 2. Export Regulations: Software including technical data, is subject to U.S. export control laws, including the U.S. Export Administration Act and its associated regulations, and may be subject to export or import regulations in other countries. Customer agrees to comply strictly with all such regulations and acknowledges that it has the responsibility to obtain licenses to export, re-export, or import Software. Software may not be downloaded, or otherwise exported or re-exported (i) into, or to a national or resident of, Cuba, Iraq, Iran, North Korea, Libya, Sudan, Syria (as such listing may be revised from time to time) or any country to which the U.S. has embargoed goods; or (ii) to anyone on the U.S. Treasury Department's list of Specially Designated Nations or the U.S. Commerce Department's Table of Denial Orders. 3. Restricted Rights: Use, duplication or disclosure by the United States government is subject to the restrictions as set forth in the Rights in Technical Data and Computer Software Clauses in DFARS 252.227-7013(c) (1) and FAR 52.227-19(c) (2) as applicable.

All other trademarks and copyrights are the property of their respective owners.

Some features described herein require supporting services. Usage charges may apply for such services.